

REMARKS

The Office Action dated May 7, 2008 has been reviewed and carefully considered. Claim 5 is redrafted into independent form without further revision other than the formalisms of changing "adapted" to "configured" and changing "characterised in that" to "wherein." Claims 12 to 15 are added. Claims 1-15 are pending, the independent claims being 1, 5 and 11. Claims 1, 7, 8 and 11 are amended. Reconsideration of the above-identified application, as amended and in view of the following remarks, is respectfully requested.

For claims 1 and 11, the spelling of "characterised" has been corrected to "characterized", as the Office Action suggests.

Claims 5 and 6 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Hendriks '949 (International Publication No. WO 00/34949) in view of US 2001/0017985 to Tsuboi et al. (hereinafter "Tsuboi").

Claim 5 is redrafted into independent form without further revision other than the formalisms of changing "adapted" to "configured" and changing "characterised in that" to "wherein."

Claim 5 recites, ". . . said compensator comprises a set of fluids having a switchable configuration."

Item 5 of the Office Action acknowledges that Hendriks '949 fails to disclose this feature, but suggests that Tsuboi does and that it would have been obvious to modify Hendriks '949 in view of Tsuboi to meet the language of claim 5.

We agree that Tsuboi discloses the feature, but traverse the proposition that the combination would have been obvious.

Hendriks '949 moves the objective lens 10, with respect to the plano-convex lens 11, to move the focus of the radiation beam (page 3, line 13: "changed.") The Tsuboi liquid-based variable-power lens shown in FIG. 20A changes its focal length to move the focus of the radiation beam. See [0174].

Thus, although the Office Action does not specify, it appears to regard the Tsuboi liquid-based variable-power lens shown in FIG. 20A as a substitute for the Hendriks '949 objective lens 10. The Office Action seems to suggest that a straight substitution (with perhaps deletion of the objective lens 10 movement function) would have been obvious.

Tsuboi, however, is directed to applications such as cameras ([0004], line 2), and not to optical discs. The Tsuboi embodiment would suffer from insufficient response time in switching between optical disc layers. See US 2008/0095498 [0006], [0007], [0011] - [0013], where this particular Tsuboi shortcoming is specifically noted. Accordingly, the Tsuboi optical element would be unsuitable for a multi-layered optical disc, such as that of the primary reference. For at least this reason, it would not have been obvious to combine the cited references in the manner the Office Action proposes.

Reconsideration and withdrawal of the rejection is respectfully requested.

Nor would claim 5 have been obvious based on the prior art of record.

Claim 6 depends from, and includes all of the limitations of, claim 5, and is likewise deemed patentable over the cited references for at least the same reason set forth above with regard to claim 5.

Reconsideration and withdrawal of the rejection is respectfully requested.

Claims 1-4 and 9-11 stand rejected under 35 U.S.C. 102(b) as being anticipated by Hendriks '949.

Claim 1, as amended, recites, ". . . a non-mechanical compensator arranged to generate, without need of a mechanical system, a different amount of spherical aberration in a radiation beam when in said first state and when in said second state."

Support for the amendment of claim 1 is found in the specification (e.g., [0003], first two sentences; [0015]; [0042]; [0043], [0048] and [0049]).

The Hendriks '949 system, by contrast, compensates for spherical aberration, when moving the beam focal point from one optical disc layer to another, by mechanically moving the objective lens 10 correspondingly. See page 3, line 11-15 and page 6, lines 11-13.

For at least the foregoing reason, Hendriks '949 fails to anticipate claim 1 as amended.

Nor would claim 1 have been obvious based on the prior art of record. US 6,992,966 to Yamamoto et al. (hereinafter "Yamamoto") places a wavefront modifier 3 (col. 9, lines 46-52) in front of the objective lens 2. The wavefront modifier 3 corrects spherical aberration, but the Yamamoto objective lens 2 is "supported so as to be movably operable in a focusing direction" (col. 5, lines 35-36). There is no suggestion that "a free working distance between said objective lens and said optical record carrier remains substantially constant when switching between said first and second states" as in the present claim 1.

It is appropriate to keep in mind that the Hendriks '949 objective lens inputs and outputs radiation beams of constant vergence as the objective lens is moved to refocus on another optical media layer. Accordingly, mere motivation, for whatever reason, to modify Hendriks '949, in view of another reference disclosing a wavefront modifier, does not implement that wavefront modifier, even if such is possible, so that sufficient vergence is introduced by the wavefront modifier such that "a free working distance between said objective lens and said optical record carrier remains substantially constant when switching between said first and second states." See present application, [0019]: "while keeping the vergence of the beam substantially unaltered." There does not appear to be any suggestion in the Hendriks '949 or Yamamoto or in what was known to those of ordinary skill in the art at the time the invention was made that would have led to claim 1 as amended.

Likewise US 7,050,214 to Hain et al. (hereinafter "Hain") uses a wavefront modifier 1 (col. 3, lines 6-10, 51-54; col. 4, lines 1-3), but provides no disclosure or suggestion that in any hypothetical Hendriks '949/Hain combination "a free working distance between said objective lens and said optical record carrier remains substantially constant when switching between said first and second states" as in the present claim 1.

US 2002/0024688 to Ogasawara et al. (hereinafter "Ogasawara") likewise fails to make up for the deficiency as discussed further below.

For at least the above reasons, the prior art of record fails to anticipate or render obvious the present claim 1, as amended.

Claims 2-4 and 9-10 depend from, and include all the limitations of, base claim 1, and likewise deemed patentable over the prior art of record for at least the same above-stated reasons discussed in connection with claim 1.

Claim 11 is a component of the apparatus of apparatus claim 1, and is amended in a manner analogous to that in which claim 1 was amended. Claim 11 is therefore likewise regarded as patentable over the cited reference.

Claims 7 and 8 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Hendriks '949 in view of US 2002/0024688 to Ogasawara et al. (hereinafter "Ogasawara").

Claim 7 is amended to recite "a birefringent grating element." The amendment finds support in [0048].

Firstly, neither Hendriks '949 nor Ogasawara discloses a "birefringent grating element." Nor does it appear their combination would feature a "birefringent grating element." Therefore, the proposed combination of references fails to render obvious claim 7 as amended, and the rejection should be withdrawn.

In addition, claim 7 depends from base claim 1. As discussed above, Hendriks '949 fails to "generate, without need of a mechanical system, a different amount of spherical aberration in a radiation beam when in said first state and when in said second state."

Hendricks '949 moves the objective lens 10 when switching optical recording layers (page 3, line 13: "changed"), and, in so doing, i.e., in moving the focal point of the

beam to the destination optical recording layer, generates spherical aberration compensation . See page 6, lines 11-13.

Ogasawara, by contrast, makes no mention of multi-layer optical discs; although, Ogasawara does contemplate using a wavefront modifier 10 to create spherical aberration compensation for different types of optical media and, in particular, their correspondingly different recording layer depths. See [0009]. For example, referring to [0110], aberration correction is made for a change in thickness of a transparent cover layer. However, there is no suggestion that the change in thickness is not handled by conventional movement of the objective lens 45, 105, (See [0107], second sentence; [0083], last sentence ("variety of controls" to maintain tracking, focus, etc.); [0011] to [0019]; see also present application [0003], last sentence), or that an Ogasawara wavefront modifier 10 could relieve the need to move the objective lens. See present application, [0019] - [0021]. Accordingly, the instant applicants do not see why the proposed combination would result in an embodiment in which "a free working distance between said objective lens and said optical record carrier remains substantially constant when switching between said first and second states," and "the optical switching arrangement comprises a non-mechanical compensator arranged to generate, without need of a mechanical system, a different amount of spherical aberration in a radiation beam when in said first state and when in said second state."

For at least all of the above-stated reasons, claim 7 as amended would not have been obvious.

Claim 8 is amended to recite "a birefringent phase structure." The amendment finds support in [0049].

Neither reference discloses "a birefringent phase structure," and combining the references seemingly would not result in "a birefringent phase structure." For this reason, the proposed combination of references fails to render obvious claim 8 as amended, and the rejection should be withdrawn.

In addition, the proposed combination would not meet the language in claim 8 common with its base claim 1, for the same reasons set forth above with regard to claim 7. Accordingly, the rejection of claim 8 should be withdrawn.

New dependent claims 12 and 13 find support in the specification (e.g., [0003], first two sentences; [0015]; [0032]; [0042]; [0043]; FIG. 1).

New dependent claims 14 and 15 find support at least in paragraphs [0042] and [0043] of the specification.

CONCLUSION

In view of the above, it is respectfully submitted that the present application is in condition for allowance. All issues raised by the Examiner having been addressed, an early and favorable action on the merits is earnestly solicited.

The Director is hereby authorized to charge any fee which may be required, or credit any overpayment, to Deposit Account No. 50-3960.

Dated: May 19, 2008

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